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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,136	09/08/2000	Shigetsugu Okamoto	1248-0516P-SP	3543

7590 02/11/2004

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EXAMINER

SHENG, TOM V

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/658,136

Applicant(s)

OKAMOTO ET AL.

Examiner

Tom V Sheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Drawings

1. Figures 61, 62, 63, 64(a), 64(b), 64(c), 65(a), 65(b), 65(c) and 66 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because the length is over 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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In the specification, page 30, lines 5-10, the claimed motion vector (line 6 of claim) is described as "information about a motion speed (speed and direction) of a picture is detected as to each pixel with an original signal for one field or frame". No further information or reference is provided regarding how the motion speed or direction is detected within the one field or frame. One of ordinary skill in the art cannot understand the detection of motion speed and direction because details on the detection are not described.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1 and 13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 3-4, the terms "focused pixel" and "adjacent pixel" are mentioned without reference to any associated frames. One of ordinary skill in the art would not be able to clearly identify the invention since both pixels could be in one frame or in two consecutive frames.

In claim 13, line 2, the term "formulae" is mentioned only with the grouping of pixels defined but without any limitation on how a motion picture pseudo contour correction-signal is generated by the formulae. One of ordinary skill in the art would not be able to clearly identify the invention.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3, 5, 7-9, 12, 14, 15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikoshiba (IDW 1996, pp. 251-254).

As for claims 1, 5 and 15, Mikoshiba teaches a motion picture pseudo contour correcting method (figures 5 and 6; pp. 253, column 2, line 14 to pp. 254, column 2, line 7) comprising the steps of:

(a) detecting a gray level shift from a focused pixel to an adjacent pixel (pixel with 128th level on the right as the focused pixel and pixel with the 127th level on the left as the adjacent pixel with gray level difference as the gray level shift), as gray level information of the focused pixel;

(b) detecting a motion vector indicative of a speed (by counting the number of pixels that experience the bit-variation) and a direction (by comparing the number of these pixels in the horizontal and vertical directions) of motion of a picture from the focused pixel to another pixel, as motion information of the focused pixel; and

(c) outputting a corrected gray level signal based on input of an original signal of the picture, the gray level information, and the motion information (by adding equalizing pulses to these pixels that experienced the bit-variation).

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As for claim 3, the use of either equalizing pulses of weights 127, 63, 0 or 95, 95, 0 indicates at least 3 pixels are affected and 3 are being corrected.

As for claims 7, 12 and 18, Mikoshiba teaches a motion picture pseudo contour correcting method in a gray level display method (figures 5 and 6; pp. 253, column 2, line 14 to pp. 254, column 2, line 7) that utilizes at least a time division method in which one field period or one frame period in image display is divided into a plurality of sub-fields (inherent in PDP display; see figure 1), said motion picture pseudo contour correcting method comprising the steps of:

generating a motion picture pseudo contour correction-use signal (motion-dependent equalizing pulses) according to gray level information of a focused pixel of a picture in a certain field or a frame (pixel with 128th level on the right as the focused pixel), gray level information of a pixel adjacent to the focused pixel in the same field or in the same frame (pixel with the 127th level on the left as the adjacent pixel), and picture motion information detected regarding the picture of the field or the frame (by counting the number of pixels that experience the bit-variation and comparing the number of these pixels in the horizontal and vertical directions); and

outputting the motion picture pseudo contour correction-use signal with respect to an original signal of the picture of the field or the frame (by adding equalizing pulses to these pixels that experienced the bit-variation).

As for claim 8, the use of either equalizing pulses of weights 127, 63, 0 or 95, 95, 0 reads on claimed plurality of signal patterns for selection.

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As for claim 9, Mikoshiba teaches that the number of adjacent pixels affected by bit-variation directly corresponds to the image speed (pixels/frame). Since a motion picture starts with 1 pixel/frame, the number of pixels affected is not less than one as claimed.

As for claim 14, Mikoshiba's comparing of the horizontal and vertical directions read on claimed components in two directions. Moreover, even in the horizontal or vertical direction, there are inherently positive and negative directions.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 6, 13, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba as applied to claims 1 and 15 above, and further in view of Kasahara et al. (US 6414657 B1).

As for claims 2 and 16, Mikoshiba teaches a motion picture pseudo contour correcting method as analyzed in claim 1 and 15. Mikoshiba further teaches said step (a) includes a sub-step (d) of selecting a correction pattern from among a plurality of correction patterns, based on the gray level information detected (the use of either equalizing pulses of weights 127, 63, 0 or 95, 95, 0 as correction patterns; page 254, lines 15-18). Mikoshiba does not teach determining a correction gray level signal based

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on a logical formula corresponding to the correction pattern selected and generating the corrected gray level signal by synthesizing the correction gray level signal.

Kasahara teaches pseudo-contour noise correction by diffusion processing (figures 20; column 26, line 30 to column 27, line 6). The noise is detected by a MPD detector 60 (figure 21) of an input image with regard to a block of pixels or a pixel. The correction is performed by a MPD diffusing device 70 based on the noise value (MPD value) detected.

In particular, the MPD detector 60 has an adjacent pixel comparator 62b that compares the value of a pixel with that of adjacent pixels in vertical, horizontal and diagonal directions (column 27, lines 37-52). Further, the comparison can further be extended to 2 or more pixels away from the pixel of interest in a certain direction (column 28, line 51 to column 29, line 3). One of ordinary skill in the art here recognizes that the MPD detector 60 is implemented in the form of a logical formula and comparison of adjacent or further away pixels in certain directions reads on claimed gray level information and motion information of the focused pixel.

In particular, the MPD diffusing device 70 applies a diffusion factor that is in proportion to the MPD value received. This diffusion factor is a quantity either added to or subtracted from the original luminance (column 31, line 54 to column 32, line 64). One of ordinary skill in the art here recognizes that the operation of the MPD diffusing device 70 reads on claimed synthesizing the correction gray level signal determined with a correction gray level signal and the original signal.

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Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate Kasahara's pseudo-contour error detection and correction method in Mikoshiba's invention, thus further providing MPD correction through error diffusion.

Claims 6 and 17 further implement claims 2 and 16 by using a well-known read/write memory and are correspondingly rejected by analyses of claims 2 and 16.

As for claim 13, Mikoshiba as modified by Kasahara teaches pseudo-contour correction in block of pixels.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba as applied to claim 7 above, and further in view of Nito et al. (JP 7152017 A).

As for claim 10, Mikoshiba teaches the use of time division method in motion picture pseudo contour correction. Mikoshiba does not teach using a pixel division method.

Nito teaches a pixel division method (the number of divisions of data electrode constituting one pixel is given as n and the number of times of line addressing per one pixel in one field is given as m ; page 4, paragraph 44). Nito further teaches that a combined driving method can be formed by combining above pixel division method with a pulse width modulation method (paragraph 45).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to combine Mikoshiba's time division method (a pulse

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width modulation method) and Nito's pixel division method, because of the further improvement in gradation display characteristics.

12. Claims 4, 11, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba.

As for claims 4 and 11, Mikoshiba does not teach capping at 4 as the most pseudo contour affected pixels to be correction. However, it is a practical matter for the trade-off as the benefit of correcting a farther affected pixel has become small.

Claims 19 and 20 describes an image display device that corresponds to claim 18 except for the implementation of the correction-use signal generating section in the form of a memory medium and means for recalling the correction value from the memory. This implementation is obvious and not a patentively distinct feature.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V Sheng whose telephone number is (703) 305-6708. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Sheng
February 6, 2004

Lun-Yi Lao
Primary Examiner

